2016 Program

University of Missouri-St. Louis

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URS
Undergraduate Research Symposium

Research • Scholarship • Creative Works

2016

University of Missouri—St. Louis
Mission Statement

The members of the University of Missouri–St. Louis chapter of Golden Key International Honour Society are committed to the creation of educational opportunities and the development of leadership skills. As leaders, we are dedicated to formulating a paradigm for student activism that preserves and advances the interests and reputation of our campus and its faculty.

In 2002, Golden Key members designed the Undergraduate Research Symposium (URS) to furnish a venue for undergraduate students to present their research, scholarship, and creative works as they would at a professional conference. This multidisciplinary event is intended to help students achieve their educational and professional goals by presenting students an opportunity to refine their communication skills and network with scholars. The URS also provides an opportunity for faculty and the broader academic community to express support for the undergraduate scholars in furthering their research and graduate studies.

What is Golden Key?

Golden Key International Honour Society is an academic honor society that recognizes and encourages scholastic achievement and excellence among college and university students from all academic disciplines. In an effort to reflect the Society's diversity and international presence, Golden Key uses the globally accepted spelling of "honour" in its name.
Chapter Officers 2015–2016

Eric’el Johnson, President
Megan Smith, Vice President
Hannah Stowe, Treasurer
Aaron Kravish, Secretary
Laura Miller, SGA Representative
Meghan Littles, Social and Alumni Director
Nicholas Domescik, New Member Engagement Director

Jodi M. Heaps, PhD, Co-Advisor
Kathryn A. Walterscheid, PhD, Advisor

The mission of Golden Key:
To enable members to realize their potential by connecting individual achievement with service and lifelong opportunity

The values of Golden Key:
Integrity, Collaboration, Innovation, Respect,
Diversity, Excellence, Engagement
The URS Committee

Jin Wang, URS Chair
Eric’el Johnson, Vice-Chair
Megan Smith, Editor
Jodi M. Heaps, PhD, Poster Editor

Kathryn A. Walterscheid, PhD, Faculty Director

URS Crew

Shannon Geary
Nicole Gevers
Hannah Gill
Aaron Kravish
Katie Walterscheid
Melaney Walterscheid

Many URS crew members volunteered after this book went to press and could not be included in this list.
Thanks to the URS Sponsors

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Co-Sponsors

Sigma Xi: The Scientific Research Society
Writing Lab, Department of English
University of Missouri-St. Louis Graduate School

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Jay Frey
Printing Services

Jodi M. Heaps, PhD
Assistant Research Professor, Psychology

Chris Schott
Coordinator, Writing Lab, Department of English

We would also like to thank all the mentors who supervised the research, reviewed abstracts countless times, edited posters, coached oral presenters, and were there when they were needed.
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The URS ends at 3:00 pm. Shortly thereafter, the awards will be presented at a brief ceremony in the Millennium Student Center, on the third floor, in Century Room C.
Awards

The UMSL chapter of Sigma Xi, The Scientific Research Society, will present three awards for posters. Faculty judges will assess the posters on content and style, the abstracts on content and clarity, and the presenters on their interaction with the audience. These awards are made possible by Dr. Patricia Parker through her Des Lee Endowed Professorship Grant.

Graduate School Application-Fee Waivers

The Graduate School is awarding application-fee waivers to URS Participants.

The URS Committee will be sending a list of URS participants to the graduate school. When you fill out the on-line graduate school application, use the statement of purpose box to indicate that you participated in the URS and are requesting a fee waiver.
Anthropology

Studies Regarding Captive Behavior of Ring Tailed Lemurs and How Those Traits Can Be Applied in Conservation of Wild Species

Charles Blanton, Anthropology
Mentor: Lana Kerker Oliver, MA

Aggressive versus Affiliative Behavior in Captive Chimpanzees (Pan troglodytes) Compared to Wild Conspecifics

Daniel Blash, Psychology
Mentor: Lana Kerker Oliver, MA

Sacral Abnormalities in 19th-Century St. Louisans

John Claggett, Anthropology
Mentor: Sarah Lacy, PhD

What Do People Know and Think About Other Religions?

Jessica Engel, Anthropology
Mentor: Patti Wright, PhD

Effects of Enrichment on the Behavior of Coquerel’s Sifaka (Propithecus coquereli) at the St. Louis Zoo

Corey Fitzpatrick, Anthropology
Mentor: Lana Kerker Oliver, MA
Effect of Visitor Crowd Size on Agonistic and Affiliative Behaviors in Two Captive Allen's Swamp Monkeys

Benjamin Hibbett, Anthropology
Mentor: Lana Kerker Oliver, MA

Apes, Monkeys, Prosimians: What It’s Like to Be a One-Year-Old

Nathaniel Jones, Biology
Mentor: Lana Kerker Oliver, MA

Social Behavior of Sumatran Orangutans at the Saint Louis Zoo

Matthew McCoy, Biology
Mentor: Lana Kerker Oliver, MA

Social Habits of the Sumatran Orangutans (Pongo abelii) at the St. Louis Zoo

Hugh McMonigle, Computer Science
Mentor: Lana Kerker Oliver, MA

Gestural Communication in Chimpanzees

Kara Meyer, Anthropology
Mentor: Lana Kerker Oliver, MA

The Exotic Animal Trade in Missouri: The Legality, Cost, and Consequence

Jacqueline Meyncke
Mentor: Sarah Lacy, PhD

Behavioral Responses to Visitor Volume and Interaction by Captive Western Lowland Gorillas

Emma Mitchell, Anthropology
Mentor: Lana Kerker Oliver, MA
Spatial Enclosure Use by Cotton-top Tamarins at the St. Louis Zoo  
Chad Ollendick, Biology  
Mentor: Lana Kerker Oliver, MA

Age and Sex Affect Infant Transfer in Captive Colobus guereza  
Sage Rohrer, Biology  
Mentor: Lana Kerker Oliver, MA

Redheads Wrestling at the Zoo  
Thomas Unterreiner, Anthropology  
Mentor: Lana Kerker Oliver, MA

Biochemistry & Biotechnology

Potassium Efflux from Escherichia coli Mediated by Synthetic Ion Channels  
Evan Garrad, Biochemistry & Biotechnology  
Mentor: George W. Gokel, PhD

Characterization of Microvesicles and Their Interaction with the Alzheimer's Amyloid-Beta Protein  
Mudar Ismail, Biochemistry & Biotechnology  
Lisa Gouwens, Chemistry & Biochemistry  
Mentor: Michael R. Nichols, PhD
Characterization and Application of an Alzheimer's-Selective Antibody

Victoria Rogers, Biochemistry & Biotechnology
Benjamin Colvin, Biochemistry & Biotechnology
Lisa Gouwens, Biochemistry & Biotechnology

Mentor: Michael R. Nichols, PhD

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Biology

Sexual Dimorphism in Diets of Guianian Sakis (Pithecia pithecia) during the Wet Season on Coastal Guyana

Lena Alsyouf, Biology
Mentor: Godfrey R. Bourne

The Effect of Precipitation on Parasitism Rates on Shelter-Building Caterpillars

Hannah Franko, Biology
Mentor: Patricia Parker, PhD

Floral Complexity and Sampling in Bombus impatiens

Kathryn Janssen, Psychology
Patricia Horack, Biology
Matthew Austin, Biology
Mentor: Aimee Dunlap, PhD

ACA9-RFP-mPTS as a Tool to Study Peroxisomes in Arabidopsis thaliana

Patrick Nittler, Biology
Mentor: Bethany Zolman, PhD
Examining Root Phenotypes Associated with Mutated At3g02550 and At1g52040 Genes to Study Auxin Roles in *Arabidopsis thaliana*

Ashley O’Neal, Biology
Stephanie Theiss, Biology
Mentor: Bethany Zolman, PhD

Mechanistic Characterization of an Alzheimer's Selective Antibody

Elizabeth Ridgway, Chemistry
Benjamin A. Colvin, Chemistry
Mentor: Michael R. Nichols, PhD

Reverse Genetics Reveal that Peroxisomal Fatty Acid β-Oxidation Enzymes Have Varying Effects on Indole-3-Acetic Acid to Indole-3-Butyric Acid Conversion

Gabrielle Rupp, Biochemistry & Biotechnology
Mentor: Bethany Zolman, PhD

Temporal Patterns of Thoracic Temperatures in an Ectothermic Neotropical Lizard, *Tropidurus hispidus*, in the North Savannas of Guyana

Ari Zakroff, Biology
Mentor: Godfrey R. Bourne, PhD

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*English*

Harry Potter and the Ring Composition throughout the Series

Meagan Fitzpatrick, English
Mentor: Ann Torrusio, MA
History

We Have Risen: AIDS Activism in St. Louis
Aaron Kravish, History
Mentor: Kara Moskowitz, PhD

Humanities

Something about Audrey: An Analysis of Audrey Hepburn’s Influence on Beauty Standards and Gender
Kourtney McKinney, Business Administration
Mentor: Ann Torrusio, MA

Reaching New Heights: The High Heel and its Ever-Growing Size and Influence
Lyndsey McKinney, Marketing and International Business
Mentor: Ann Torrusio, MA

Interdisciplinary

Enrollment, Food Access, and UMSL's Poor
Laura A. Miller, Philosophy
Mentors: Kathleen Nigro, PhD; Bryonie A. Carter, MA; Jill B. Delston, PhD
Music

Ancient Greek Music
Alexis Lovins, Music
Mentor: Zachary Cairns, PhD

Physics

Composition of Oxygen-Bearing Species in Comet C/2002 T7 (LINEAR)
Brigid Costello, Physics
Mentor: Erika Gibb, PhD

Partial Volatile Composition of Comet C/2002 T7 (LINEAR)
Nicholas Moore, Physics
Mentor: Erika Gibb, PhD

Psychology

A Theoretical Paradigm for Testing Existence of Placebo Effect in Insects
Daniel Blash, Psychology
Mentor: Kimberly Baldus, PhD
Factors Associated with Perceived Wantedness and Consent during First Heterosexual Intercourse: A Study of Students at Three Universities

Dasha Carver, Psychology
Shalisha T. Morgan, Psychology
Allison L. Kirschbaum, MA
Kristen N. Jozkowski, PhD
Terry P. Humphreys, PhD
Mentor: Zoe Peterson, PhD

The Role of Coping Strategies on Stress Response in Trauma Survivors

Danielle Dalechek, Psychology
Mentor: Michael G. Griffin, PhD

Rumination is Associated with PTSD Severity, Symptom Clusters, and Self-Related Brain Structures

Tasheia Floyd, Psychology
Mentors: Carissa L. Philippi, PhD; Steven E. Bruce, PhD

Impact of Health Literacy on Medication Management

Kaitlin Henning, Psychology
Mentor: Ann Steffen, PhD

Ignorance is Bliss?: Lower Gender Stigma Consciousness as a Protective Factor for Women in STEM

Noreen Heyari, Psychology
Tiffany Ramirez Wedding, Psychology
Courtney Dorris, Psychology
Erin Sullivan, Psychology
Mentors: Bettina Casad, PhD; Zach Petzel, PhD
Zombies: The Reasons They Exist and Why We Can’t Live Without Them

Adriene Michelle Lai, Psychology
Mentor: Kimberly Baldus, PhD

Can Being in Love Lead to Distraction from Everyday Tasks?

Katrina Lynn, Psychology
Mentor: Sandra Langeslag, PhD

Use of a Brain-Computer Interface during a Lucid Dream: Pilot Study and Future Directions

Remington Mallett, Psychology
Mentor: Suzanne Welcome, PhD

Effects of Threatening Environments on Cardiovascular Reactivity and Task Performance among Women in STEM

Sarah Mitchell, Psychology
Richard Currie, Psychology
Lauren Kanyuck, Psychology
Evan Blechle, Psychology
Mentor: Bettina J. Casad, PhD

Gender Equity Moderates the Relationship between Threat and Self-Esteem among Women in STEM

Sarah Mitchell, Psychology
Maria Zimmerman, Psychology
Alex Stubblefield, Psychology
Amber Daly, Psychology
Chris Hodge, Psychology
Mentor: Bettina J. Casad, PhD
Social Climate Predicts Risk-Taking: The Role of Gender Identity as a Buffer

Danielle Oyler, Psychology
Michael Fague, Psychology
Drake Anderson, Psychology
Brian Flammang, Psychology
Mentor: Bettina J. Casad, PhD

Examining Types of Coping with Stress in Parents of 2-Year-Olds

Jamie Powers, Psychology
Mentor: Emily Gerstein, PhD

The Influence of Infatuation on Attention during Neutral Tasks

Kruti Surti, Psychology
David J. Robertson, Psychology
Nilli Lavie, Psychology
Mentor: Sandra Langeslag, PhD

Low Dose Post Nicotine and its Reduction in Penumbra Volume

Beth Weise, Psychology
Tom Mauer, Psychology
Jacob Huffman, Psychology
Mentor: George Taylor, PhD

Spanish

Spanish Gender Assignment in the University Classroom: A Look at Participants’ Characteristics that Affect the Acquisition of the Spanish Gender Feature

Teresa Helms, Spanish
Mentor: Ralph Cordova, PhD; Lauren Schmidt, PhD